IMPACT OF BOMBAY JAM PROGRAM ON SELECTED PHYSIOLOGICAL AND HEALTH RELATED PHYSICAL FITNESS COMPONENTS AMONG WOMEN OF GOA

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Sr. No.	Topic	Page No.
1	Introduction	3
2	Statement of the problem	10
3	Significance of the study	11
4	Objective of the study	11
5	Hypothesis of the study	12
6	Delimitations of the study	13
7	Limitations of the study	14
8	Review of literature	15
9	Research Methodology	18
10	Tentative Scheme of Chapterisation	19
11	Reference	20

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INTRODUCTION

Health, vitality and long life are desirable goals for everyone, but they are not achieved without efforts. Because many of the habits of modern life do more to diminish health then to increase it, for which good level of fitness is very important to maintain. If you are resolved to take a positive attitude toward your health and well-being, and to prevent problems rather than simply treating them as and when they occur, then physical fitness must be essential part of your life.

Physical Fitness

Physical fitness is an one of the most fundamental key to have sound & healthy body or an individual. Physical fitness is the primarily the bodily aspects of fitness, that implies the abilities as that resisting fatigue, performing with an acceptable degree of motor ability and being able to withstand muscular stress. Individual need to add sound exercise habit to developed the health benefits for lifelong. An individual cannot built up a store of fitness for lifelong rather an individual needs to exercise regularly to achieve a healthier and more productive lifestyle.

Aerobic Exercise

The type of exercises that is most effective in improving fitness is aerobic exercises. Aerobic means " With Oxygen", and all aerobic exercise uses oxygen. The oxygen reaches the body by being breathed in through the lungs and distributed to working muscles via the blood, which is pumped around the circulation by the heart. Aerobic exercise usually involves vigorous exercise sustained over a period of several minutes, and its effect is to increase the efficiency of the lungs, heart and blood circulation, which are known collectively as the aerobic system. The study gives many examples of aerobic activities as well as specific programs like rhythmic movements, aerobic dance, jogging, swimming or certain calesthenics. It is a kind of complete physical workout without the feeling of fatigue.

Aerobic Dance

Aerobic dance has been the most accepted methods of noncompetitive, free-time group exercise for health and psycho-physiological benefits. Aerobic dance is a physical activity which brings out sweat and causes you to breathe harder as heart beats faster than at rest. Aerobic dance strengthens the heart and lungs and builds up cardiovascular system to manage and deliver oxygen more quickly and efficiently throughout the body. Aerobic dance helps to improve cardiovascular endurance and overall fitness.

Zumba

Zumba is a fitness based physical activity that mixes aerobic exercises and rhythmic choreographies. Zumba was created in mid 1990s by Alberto " Beto" Perez who was a fitness and aerobics instructor in Cali, Colombia. In 2001 he was accompanied by two other Alberto- Alberto Perlman and Alberto Aghion and they invented the name "Zumba" because of its similarity to name "Rumba". Zumba is a fitness program that incorporates cardio and Latin- inspired dance. Past few years in 2010, Zumba gazed the popularities all over the world and classes were being held in 125 countries. They started with official workshops and enlarged the Zumba certifief instructor community to teach the Zumba program all over the world. Zumba formula is a dynamic new aerobic exercise dance form that focuses on cardio on to improve and maintain health and physical fitness. (Zumba 2010, manual)

Music and Dance

In today's world we live technology has brought us closer to the music. Music plays a one of the several culturally meaningful and creative leisure activities that helps in the refreshing spiritually and promotes self expression, positive health, and well being of an individual

Music has been used throughout history and across cultures to encourage a movements with enthusiantly in accompany exercises. Music catch attention triggers range of motion, regulates mood, increase the work output, activate in sentiments and encourage to rhythmic movements and various sequences of exercise perform on music.

Dance has traditionally been an important part of religion and culture in India. It is an integral representation of the Indian culture. Indians dance for various reasons as to preserve the culture and heritage, celebrate festivals and weddings, entertainment by performing bollywood dances, and for the pure joy and happiness. Benefits of dancing is great tool for maintaining healthy body and mind. Dancing is a way making your workout fun, helps in improving your heart ability, strengthens your muscles and builds balance and coordination. Dance makes you feel free and gracious when you get engaged in activity. Women tend to love dancing as it's a great exercise burning calories, which brings out to be confident, builds body's self esteem, become socialize, companionship in learning, being able to move gracefully.

Bollywood

Bollywood is the name given to the Bombay-based film industry in India, which his as been in existence for decades. The industry produces approximately 800 films a year (twice as many as Hollywood!). Movies are distributed across the globe, and have a massive fan base in countries far-flung from India, and their appeal is far beyond people of ethnic Indian origin.

Bollywood films are mostly musicals and their success depends on the quality and popularity of their music soundtracks. The music is typically released before the movie to create huge demands at the box office, and is often more popular than the movie itself!

Over the years, musicians in the Bollywood industry have been influenced by Western artists and global sounds, including Hip Hop, Latin rhythms, Pop, Rock and Jazz. In the last decade or so, we have seen these influences manifest in a big way in the music created for films.

Bollywood dance originated from Indian classical dance styles that have been in existence for thousands of years, as well as folk dances that have been practiced by communities in India for centuries! The meaning of the lyrics is often expressed through specific movements of the body and hands, especially in classical and folk dance styles like *Bharatnatyam, Kathak, Bhangra and Garba.*

However, due to the new global influences in the Indian music pop scene, Bollywood dance now encompasses numerous global dance styles. From traditional Indian and folk fundamentals, to elements of Modern, Jazz, Hip Hop, Latin and Lyrical dance...we see it all on the silver screen now! Yet, there is an unmistakable 'Indian-ness' that persists, and the industry is still true to the unspoken framework of Bollywood, the fundamentals of which haven't changed for decades.

Bombay Jam®

Bombay Jam® is an explosive Bollywood dance fitness total body workout program, which incorporates cardio and toning in one action-packed class. The Bombay Jam program was invented in 2012 by Mona Sampath Khan who is founder of Bombay Jam in North America. The program has a serious focus on integrating fun & fitness:

Custom music mixes with the Bollywood tracks, often combined with American Top 40 songs for instant, universal appeal

Choreography incorporates simple dance fitness moves and is packed with authentic Bollywood flavor!

The program is designed as a 1-hour class and consists of two parts. The first part is Bollywood dance-based cardio routines that are designed to bring the heart rate up, and help build stamina and endurance. All the routines and their movements have been choreographed with a lot of thought and are designed not only to be extremely fun, but also effective and safe. They are easy to follow, and students do not require any dance experience to thoroughly enjoy themselves, even in a first class!

The second part of a class comprises of toning and sculpting routines that focus on various muscle groups such as the quadriceps, gluteal muscles, abdominals, core, deltoids, biceps and triceps. In order to burn fat at a rapid rate, you have to build muscle…it's as simple as that! The combination of cardio and toning in one class provides students a well-balanced, total body workout.

Custom music mixes of the Bollywood songs are often combined with the American Top 40 songs thereby creating universal appeal! The innovative and unique music mixes alone will inspire, excite and motivate students. Bollywood is known for its varied styles of music that support different dance styles. Many of the movements in Bombay Jam® have an ethnic appeal, giving them an undeniable Bollywood flair, and this makes the content incredibly fun not only for students, but also for instructors! Common dance moves are also included in the choreography.

Bombay Jam® is suitable for people of all ages and fitness levels and routine intensity can be increased or decreased. The program is safe, effective and is guaranteed to provide results quickly. The creators of Bombay Jam® have worked with certified fitness professionals to ensure a safe and effective workout. Program content (choreography & music) is created and managed by a core team of professional dancers and choreographers with extensive teaching and performance experience in Bollywood and other dance styles. They are constantly researching and creating content that is innovative and fresh to delight students in each class.

Bombay Jam® aims at their fitness program effectiveness that the bodies will become leaner and stronger, energy levels will sky rocket and 'fun' will be deeply connected with fitness, this transformation is theirs tokeep forever, and their biggest testament.

Bombay Jam® Class Structure & Science

Warm Up:

Each Bombay Jam® class is structured to start with a warm up to ensure that students are ready to workout, to gradually bring their heart rate up and increase oxygen in the body to prepare them for the more intense cardio portion of the class. A proper warm up before starting any exercise may also help prevent injury.

Cardio:

The cardio routines combine traditional Bollywood movements with high-energy aerobic movements for an extremely fun and challenging workout. The routines conducted in a class are of varying intensity levels to gradually bring up the heart rate allowing you to fatigue and challenge your cardiovascular system progressively. When we push at levels of greater intensity, the body moves from an aerobic state (enough oxygen supply) to an anaerobic state (absence of sufficient oxygen). A high intensity cardio workout helps increase this threshold by strengthening our cardiovascular system so it can maintain that level and still work aerobically. In turn, we are attempting to increase the anaerobic threshold, which will allow the body to work harder and longer without fatiguing quickly. However, if the intensity is not increased gradually, the body reaches an anaerobic state too quickly, begins to fatigue sooner, and due to lack of oxygen supply, becomes increasingly tired as the workout progresses. Hence, it is important to maintain the recommended progression in the routines.

Similarly, coming down from higher intensity routines should also be gradual. A cool down in the form of an easy, level 1 cardio routine at the end of a cardio segment is important because during a high intensity workout the heart is pumping at a rapid pace to move the blood all over the body.

When an exercise routine is stopped abruptly the heart continues to pump at this increased pace but the body does not need all the blood that is being pumped into it. This causes the blood to gather at the lower extremities of the body causing a condition known as blood pooling. Blood pooling can lead to dizziness and nausea.

After a workout, the body still continues to work hard as it has to replenish energy sources and recover. This means that calories are being burned not only while performing the activity, but also after the activity.

A Bombay Jam® class includes level 1, level 2 and level 3 routines to achieve this goal and the program content covers both high and low impact movement. Also included in the program are various modifications for each of the routines – so students of all fitness levels will be continually challenged, safely.

Toning:

Toning routines follow the cardio segment in a Bombay Jam® class. The more muscle tissue you have, the more calories you can burn. Muscle replaces fat and has a high-energy requirement. The more muscle your body is composed of, the higher your metabolism will be. Strength training also creates strong ligaments and tendons, which help support joints and decreases the chance of injury from other activities. Bone density increases dramatically, reducing the risk of osteoporosis. Toning and strength training makes muscle stronger, something which we benefit from in many aspects of daily life.

Routines are based around controlled movement: students should be thinking about the targeted muscles and what exactly is being worked during each exercise, which automatically increases effectiveness and safety at the same time. Students feel the burn in the muscles being actively worked when the movements are performed in a controlled manner rather than by using momentum. Bombay Jam® toning focuses on using the core as the main stabilizer for all exercises. The constant engagement of the abs and core plus controlled movement is a winning combination.

Traditional toning is typically associated with using dumbbells, plates on machines and bands as forms of resistance. Toning routines in Bombay Jam® often do not utilize any external props. Rather, we use our own body weight to tone. When bodyweight is used, the form of resistance is gravity.

Bodyweight training is a very effective and convenient form of resistance training because it can be performed virtually anywhere without a need for equipment, and forces us to learn how to stabilize and control our own body against gravity. If students learn to perform these exercises the right way, they can achieve the expected results.

Stretch:

A relaxing and calming end to a workout! When you workout, muscles contract and this makes them stronger. Naturally, the muscles tighten when this occurs. Stretching after workouts helps elongate the tightened muscles and may also help increase their range of motion. It is beneficial to stretch the muscles when they are still warm from the workout so as to avoid tearing them. Stretching at the end of a workout is also important as it gradually brings the body back to a resting heart rate.

Important Note About Stretching: Do not include pulsing/ballistic stretching. The moves should be a series of holds in different positions in which the student is actually focusing on stretching the muscle, rather than short abrupt reaches/movements. Also, be mindful to avoid lateral flexion and forward flexion by using the arm(s) to support the upper body while stretching

Bombay Jam® Class Format

Warm Up Routine:

Duration should be 5 minutes of total class time

Create a warm up routine that brings the heart rate up gradually. A few suggestions on moves to include are: step touches, grapevines, step cross forward, step cross back, lunges, plié lifts and side steps. You can include arm and core movements like torso isolations, shoulder rolls, reaches, etc.

About 2 minutes into the routine, students' heart rates should be up, and now you can add a few key stretches (it is beneficial to stretch muscles when they are warm so as to avoid tearing them):

For example, stretch the neck muscles by turning the head side to side, looking up and down and slow partial head rolls in the front plane of the body (don't drop the head back), stretch the sides of the body, the lower back, and the hamstrings

The stretches should also be dynamic, as it's still a part of the warm up and the goal is to gradually bring the heart rate up and keep it up. For example, you can do a gentle neck stretch while doing a slow step touch, or an upper arm stretch while doing a plié lift. Static stretches shouldn't be held for more for more than 8 music beats!

Music selection should be approximately 120 BPM (beats per minute)

Cardio Routines:

Duration should be 25 minutes of total class time (approximately 6 routines)

The cardio tracks vary in intensity and are assigned different levels. The numbers 1-3 represent the level, with 1 being the least intense. The Bombay Jam® class has been designed for cardio routines to be chosen for each class in the following order: 1,2,2,3,3,1

Depending on your students, the format may require some modification. For example, if your class has students who are very fit, then perhaps more level 3 routines would be preferred. On the other hand if the class has mostly novices, or an older population, then more level 1 routines may be used

It's very important to start and end the cardio section with a level 1 routine, irrespective of the profile of your class, as the pace of a level 1 routine is set to safely bring the heart rate up or down gradually

There should be no break from one routine to the next, unless you need to give a very quick set of instructions. Students may step away to have a sip of water, etc, and if they do, encourage students to keep moving by marching in place while the next track starts. The sudden drop in heart rate from a level 3 routine for example, to a complete stop, is unsafe and can cause someone to pass out, feel dizzy, etc.

Toning Routines:

Duration should be 20 minutes of the total class time

A minimum of 3, or up to a total of 4 toning tracks should be accomplished in each class

Choose a variety of toning routines targeting the legs, upper body (including arms) and one abdominal track. If the abdominal track is done on the floor, then end with this routine; this way students are on their mats and can easily transition into the stretching segment

Before doing a toning routine, quickly demonstrate the important moves and go over any coaching tips; these would be your set-up instructions before the start of the routine

Demonstrate any modifications, if needed

Proper breathing is an important factor to keep in mind while performing toning exercises. It is never a good idea to hold one's breath while exercising. This can lead to sudden changes in blood pressure, which may cause dizziness. It is safer to learn proper breathing techniques while exercising --- exhale at the point of greatest stress, when the muscle is being exerted and inhale during the relaxation of the muscle

Toning is hard work and even though it is extremely important, often it may not be as fun as cardio. So encourage your students and make this segment of the class as enjoyable as you can!

Stretch:

Duration should be 5 minutes of total class time

This segment should bring the heart rate to a resting rate and help stretch the muscles worked during class. A few suggestions are: simple stretches like reaching the arms overhead while laying down on the mat and stretching the legs out with toes pointed and hugging the knees in then dropping the knees to one side and then the other. Slowly bring your students up to a standing position by having them turn on any one side first, and continue stretching the back, upper body and neck once standing

If you are bringing them into a standing position after they have done a few seated stretches for example, have them straighten through the legs first, round out their back, bringing the head uplast

Most of the stretches used for the warm up can be repeated in this section, but you hold the stretches for longer periods of time

Since students have close to a resting heart rate at this point, you can have them drop their head below the heart in a stretch, like standing up and touching their toes in a hamstring stretch

Bombay Jam: 55 Minutes Total Body Workout Program (Cardio & Toning Routine)

Cardio Routine

Warm-up

Cardio Level 1

Cardio Level 2

Cardio Level 2

Cardio Level 3

Cardio Level 3

Cardio Level 1

Toning Routine

Toning of Arms

Toning of Abs

Toning of Legs

Cooling down

STATEMENT OF THE PROBLEM:

Group fitness exercise program is an exciting way to get started with the workout which turns out into fun social activity. With music playing and everyone else working with each other, sharing in the struggle and success it feels more like a party than a workout. Various dance based group fitness program rave in the country like Aerobics Dance, Musical Rhythmic Movement, Zumba, bollybeats and other dance fitness programs. Aerobic dance often focuses on very structured moves whereas Zumba is a mode of aerobic workout which involves latin dance movement which works on cardio, strength and flexibilty. As per the survey 92% of Indians dependent on music. It was found that people were depend on music to get through a difficult phase in their life and music improves their mood. 84.73 per cent Indian women and 80 per cent men say that music is a big stress buster. From bollywoods foundation in 1970's Bollywood has been evolving constantly in India. Bollywood's dynamic evolution is the progressing mindset of the population of India. In India celebrations of national festivals such as diwali, holi, where families and friends unite and dance to Bollywood music. The Bombay Jam has come up with a Bollywood Dance Fitness Total Body Workout which has been started in North America and slowly now growing its community of Bombay Jam Certified trainers in India. Bombay Jam program is newly developed routine program focusing on total body workout that is cardio and toning of the body. So the question raised in researcher's mind as does the Bombay Jam program will have impact on an individual's physical health? Does the Bombay Jam program will have impact on anthropometric, physiological parameters and on health related physical fitness components among women in Goa? Hence the researcher is interested to "Study the Impact of Bombay Jam Program on Selected Physiological and Health Related Physical Fitness Components among Women of Goa".

SIGNIFICANCE OF THE STUDY:

The study will help to know that Bombay Jam Program proves to be better and effective and will have positive learning for women in Goa.

The study will reveal women's physiological parameters and health related physical fitness (hrpf) components status.

The study will contribute in addressing the effect of Bombay Jam program on selected physiological parameters and health related physical fitness (hrpf) components.

This study will add more to the knowledge of the area of the Bombay Jam dance fitness and with respect to other rhythmic movement fitness industry.

The study will be helpful to the gym instructors, other dance fitness instructors and individuals to get certified and to implement the program on their clients.

This study will be helpful for further advance research in the field of Physical Education.

OBJECTIVES

To measure the resting heart rate of women from Goa by conducting pre test on experimental group and control group.

To measure Vo2 Max of women from Goa by conducting pre test on experimental group and control group.

To measure the total cholesterol of women from Goa by conducting pre test on experimental group and control group.

To measure the lipid profile of women from Goa by conducting pre test on experimental group and control group.

To measure the cardiovascular endurance of women from Goa by conducting pre test on experimental group and control group.

To measure the muscular strength of women from Goa by conducting pre test on experimental group and control group.

To measure the muscular strength endurance of women from Goa by conducting pre test on experimental group and control group.

To measure the flexibility of women from Goa by conducting pre test on experimental group and control group.

To measure the body composition of women from Goa by conducting pre test on experimental group and control group.

To prepare and implement Bombay Jam program on selected physiological and health related physical fitness (hrpf) components of women from Goa.

To measure the resting heart rate of women from Goa by conducting post test on experimental group and control group.

To measure Vo2 Max of women from Goa by conducting post test on experimental group and control group.

To measure the total cholesterol of women from Goa by conducting post test on experimental group and control group.

To measure the lipid profile of women from Goa by conducting post test on experimental group and control group.

To measure the cardiovascular endurance of women from Goa by conducting post test on experimental group and control group.

To measure the muscular strength of women from Goa by conducting post test on experimental group and control group.

To measure the muscular strength endurance of women from Goa by conducting post test on experimental group and control group.

To measure the flexibility of women from Goa by conducting post test on experimental group and control group.

To measure the body composition of women from Goa by conducting post test on experimental group and control group.

To measure and study the effect of Bombay Jam program on selected Physiological and health related physical fitness (hrpf) components among women from Goa.

HYPOTHESES

H1 It will be hypothesized that the intervention of Bombay Jam program will have a significant improvement on resting heart rate among women of Goa.

H2 It will be hypothesized that the intervention of Bombay Jam program will have a significant improvement on Vo2 Max among women of Goa.

H3 It will be hypothesized that the intervention of Bombay Jam program will have a significant improvement on total cholesterol among women of Goa.

H4 It will be hypothesized that the intervention of Bombay Jam program will have a significant improvement on lipid profile among women of Goa.

H5 It will be hypothesized that the intervention of Bombay Jam program will have a significant improvement on cardiovascular endurance among women of Goa.

H6 It will be hypothesized that the intervention of Bombay Jam program will have a significant improvement on muscular strength among women of Goa.

H7 It will be hypothesized that the intervention of Bombay Jam program will have a significant improvement on resting muscular strength endurance among women of Goa.

H8 It will be hypothesized that the intervention of Bombay Jam program will have a significant improvement on flexibility among women of Goa.

H9 It will be hypothesized that the intervention of Bombay Jam program will have a significant improvement on body composition among women of Goa.

H10 It will be hypothesized that use of intervention of Bombay Jam program will have significant improvement on selected Physiological and Health Related Physical Fitness component among women of Goa.

DELIMITATIONS

The study will be delimited to the 40 women's from Goa

The study will be delimited to the women's age ranging from 18-30 years

The selected training method will be of 55 minutes Bombay Jam Program.

The study will be delimited to the following selected dependent variables:

Physiological Parameters

- Resting Heart Rate
- Vo2 Max
- Total Cholesterol
- Lipid Profile

Health Related Physical Fitness

- Cardiovascular Endurance
- Muscular Strength Endurance
- Muscular Strength
- Flexibility
- Body Composition

The study will be delimited to the following independent variable

Bombay Jam Program

LIMITATIONS

Nutritional status, Health habits and life style will be considered as the limitation for the study.

Socio- economic status, psychological and effect of uncontrollable factors will be considered as the limitation for the study.

REVIEW OF RELATED LITERATURE

Review of related literature is an instrument which helps the researcher in the selection of topic to carry out the research. It helps to frame ideas and to provide guidelines and support the needs of the researcher. The researcher will be referring the various types of researches which have been done in the past from the internet and library. The following review of literature will be considered for the purpose of this study.

1. Sandeep Kumar and Priyanka carried out a research study in 2016. The objective of their study was to assess the effect of Zumba & Aerobics exercises on physical fitness variables of college girls 18-24 years. Thirty (30) girls, aged from 18-24 years, were volunteered as subjects for their study. The selected variable for the study was cardiovascular endurance and BMI and for measuring cardiovascular endurance and BMI Harvard Step Test and skinfold measurement were taken into consideration. Zumba & Aerobics exercises were intervened for the period of twelve (12) weeks. This experimental design consists of an experimental group which was compared with a control group for the testing the effects of Zumba & Aerobics exercise training program on cardiovascular endurance and skin fold measurement component. This experimental design was Non-equivalent control groups Design (pretest/post-test) where the experimental group received the Zumba & aerobics exercise training program and the control group did not. The collected data were analyzed by using One Way ANCOVA. In their study they found that after the Twelve weeks training programme there was a significant improvement in the cardiovascular endurance and skinfold measurement of college girls.

2. Pratidnya Mayekar and Dr. Mane Mnohar M carried out a study in 2014. The purpose their study was to evaluate the health related physical fitness components through selected Zumba aerobics exercise. A group of 40 working women were selected randomly as subjects as sample in the group of 21 to 40 years. Muscular strength, muscular endurance, flexibility, cardio vascular endurance, freedom from obesity as a fitness components. Marching, High knee lift, salsa, cha cha, Mambo, Cumbia ,Jazz were selected Zumba Aerobics exercises given to the experimental subjects. Analysis of the data showed significant improvement at $P<0.05$ for all health related physical fitness components whereas they showed improvement. Hence in their study it was concluded that the muscular strength, muscular endurance, flexibility, cardio vascular endurance, freedom from obesity useful in this study.

3. Abdul Manan Dar and Dr. R. Venkatachalapathy conducted a research study in 2021 to find out the impact of Rhythmic Exercise on Physical and Anthropometric Parameters in adolescent obese boys. Their research included 45 obese adolescent boys aged 13-19 years only. The author analyzed the impact of selected rhythmic exercise on physical and anthropometric variables were such as flexibility and body mass index on adolescent obese boys were randomly selected from U.T. Jammu&Kashmir. They were assigned into three groups. Each group consists of forty-five subjects. The three groups are namely Group I acted as Experimental Group (Rhythmic exercise) Group II acted as Experimental Group (Suryanamasker exercise) Group III control group without exercise. The duration of the exercise period was 12 weeks. This final test score is from the as post-test score of the subjects. To find out the significant differences between the groups, an analysis of covariance (ANCOVA) was applied. When the f-ratio of adjusted post-test mean was found to be significant, Scheffe's post hoc test was employed to find out paired mean differences. The level of confidence was fixed, at 0.05 level of significance groups to study the significance of improvement in physical and physiological parameters as a result of the exercise in all cases 0.05 of significance was fixed to test the hypotheses. The result revealed that rhythmic exercise was more effective than Suryanamasker exercise in retaining rhythmic exercise participating and improving physical and anthropometric improvement in adolescent obese boys.

4. V. Shivasangari carried out the study in 2018 to find out the effects of isolated, combined zumba and plyometric circuit training on corporeal, physiological and skill performance of intercollegiate basketball players. To achieve the purpose of this study sixty women inter collegiate basketball players were selected from affiliated colleges of Bharathiar University, Coimbatore, Tamil Nadu. The age of the subjects was ranged between eighteen to twenty five years. The selected subjects (N=60) were divided into three equal groups (n=15) of which Experimental group I named as Zumba Training Group (ZTG), Experimental group II- Plyometric Circuit Training (PCT), Experimental group III- combined zumba and plyometric circuit training (CZPCT) and Experimental group IV- acted as Control group (CG). All the four groups were tested on selected corporeal variables such as speed, agility, explosive power, cardiovascular endurance, muscular strength and endurance, flexibility and physiological variables such as resting pulse rate, VO2 max and mean arterial blood pressure and skill performance variables such as dribbling, passing, shooting were also recorded in their respective units as pre-test scores. After pre–test, the experimental group I was treated with zumba training and group II was treated with plyometric Circuit training and group III was treated with combined zumba and plyometric circuit training for sixty minutes duration per day for four days a week in the morning session. This was done for a period of twelve weeks. After twelve weeks of training all the subjects were tested again on same variables and the readings were recorded in their respective units as post-test scores. To test the significant changes made from the base line to post-test on all the groups individually, 't' test was applied. The significance of the means of the obtained results was tested at 0.05 level of confidence. The collected data were processed by using Analysis of Covariance (ANCOVA) to determine if there was any significant difference among the treatment means on each variable. When analysis of covariance showed significant differences between treatment means, Scheffe's post hoc test was applied to test the significance of difference between the paired adjusted means at 0.05 level of confidence. The data was analyzed by using the SPSS software analysis.

5. K. Vanitha Devi carried out a study in 2018 to find out the "effect of aerobic dance and pilates training on health related physical fitness components and physiological parameters of college woment to fulfill the purpose of the study, forty five female students was selected from Kamalam College of Arts and Science, Anthiyur, Udumalpet, Tamilnadu and aged ranged between 18 and 23 years. The selected subjects were divided into three equal groups consisting fifteen each. Experimental group - I underwent aerobic dance training (ADT), experimental group - II underwent pilates training group (PTG) for a period of 12 weeks. Group - III acted as control group (CG), the subjects in control group were not engaged in any training programme. All the subjects were healthy and physically fit. The nature and importance of the study was explained to the subjects and they expressed their willingness to serve as subjects in this study. The subjects were free to withdraw their consent in case of feeling any discomfort during the period of their participation but there was no dropout during the study. The study was delimited to the following dependent variables like health related physical fitness flexibility, muscular strength endurance, cardio respiratory endurance, percent body fat, physiological variables namely resting heart rate, vital capacity, breath holding time, and VO2 max. The following standardized tests were used to measure the health related physical fitness variables namely, flexibility was measured by sit and reach test, muscular strength endurance measured by sit ups test, cardio respiratory endurance was measured by cooper's 12 minutes run and walk test, percent of body fat was measure by skin fold caliper and physiological variables namely resting heart rate was measured digitalized hear rate monitor, vital capacity measured by digital spirometer, breath holding time was measured by manual nose method and VO2 max measured by Bench step up test. To make the study more scientific the subject reliability, reliability of data, instrument reliability, tester reliability was established. The data was analysed in two parts. (a) in order to analysis the training effects of each group on selected physical fitness, physiological

and psychological variables 't' ratio was used. (b) In order compare the effect of treatment on selected physical fitness, physiological variables among the three groups, analysis of covariance was used. Whenever, the 'F' ratio for adjusted post-test was found to be significant to determine which of the three paired means significantly differed, the Scheffe's test was applied. In all the cases 0.05 level of confidence was fixed as a level of confidence to test the hypothesis.

RESEARCH METHODOLOGY

Method: to study the impact of 12 weeks Bombay Jam Program on selected Physiological and HRPF Components of Women in Goa the researcher will use Experimental Research Method.

SAMPLING

POPULATION: Working/Non-Working Women of Goa age raging from 18-30 years from Goa will be considered as the population for the present study.

SAMPLE: The study will include 40 women of Goa. Experimental Group (20) and Control Group (20). Sample will be selected by using purposive sampling technique. Further to have the equality and fairness in dividing the samples in two groups that is experimental group and controlled group, the groups will be divided using lottery method.

PAR-Q TEST

Physical Activity Readiness Questionnaire will have seven questions that would design to identify individuals who needed medical clearance before taking any physical fitness tests or starting an exercise program. It will help investigator to assess the participant's fitness status whether she is fit to do Bombay Jam for the study period.

VARIABLES:

Independent Variable

Bombay Jam Program- 55 minutes

Dependent Variables

Selected Physiological Parameters

Selected Health Related Physical Fitness Components

TOOLS FOR THE DATA COLLECTION

Physiological Parameters

Sr. No	Components	Measuring tool	Units
1.	Resting Heart Rate	Radial Artery Palpation	Beats Per Minute
2.	Vo2 Max	Harvard Step Test	Pulse Rate Per Minute
3.	Total Cholesterol	Blood Analysis	Mg.dl-1
4.	Lipids Profile	Blood Analysis	Mg. dl-1

Health Related Physical Fitness Components

1.	Cardiovascular Endurance	12 Minutes Run/Walk Test	Distance in Meters
2.	Muscular Strength	1 Minute Sit Ups	Numbers
4.	Muscular Strength Endurance	Modified Push Ups	Numbers
5.	Flexibility	Sit and Reach	Centimeters
6.	Body Composition	Fat% & BMI	Percentage & BMI Readings

STATISTICAL TECHNIQUE

Descriptive statistical technique and inferential statistical technique that is paired sample t test will be used to analyze the data for this study.

PROCEDURE

To study the impact of Bombay Jam program on selected physiological and health related physical fitness components among women of Goa, firstly prior to the commencement of the data collection the researcher will approach to the working and non-working women of Goa to obtain their permission to include them as subjects for this study. The researcher will recruit 40 women subjects of age ranging between 18-30 years using purposive sampling technique for this study. And the samples will be divided into groups that are experimental group and controlled group using lottery method. The subjects will be briefed about the significance, purpose and the nature of the study. After their consent the researcher will administer the pre test on experimental and controlled group to know their present status before conducting the Bombay Jam program and will collect the data. After the completion of certain weeks Bombay Jam program on subjects the researcher will administer the post test on experimental and controlled group and data will be recorded. The collected data will be analyzed using descriptive statistics and Paired Sample t test to test the hypothesis.

TENTATIVE SCHEME OF CHAPTERISATION

To study the Impact of Bombay Jam Program on Selected Anthropometric, Physiological Parameters and Health Related Physical Fitness Components among Women of Goa. I am taking into consideration five chapters. The study will be consisting of five chapters. The chapter scheme of the research will be as following-

CHAPTER I- INTRODUCTION

This chapter deals with the introduction to the study.

CHAPTER II- REVIEW OF RELATED LITERATURE

The second chapter of thesis deals with the Review of Literature. Review of related literature is an instrument which helps the researcher in the selection of topic to carry out the research. It helps to frame ideas and to provide guidelines and support the needs of the researcher. A study of relevant literature is an essential step to get a clean idea of what has been done with regard to the problem under study.

CHAPTER III- RESEARCH METHODOLOGY

The third chapter of thesis deals with the Research Methodology. Research Methodology is the detailed method or technique; it is a process of collecting data for the purpose of the study. This chapter includes information about the method followed in the study, the sampling techniques used, tools used for data collection and the statistical tool and technique used for analyzing the collected data.

CHAPTER IV- ANALYSIS OF DATA AND INTERPRETATION OF RESULT

Collected data needs to be analyzed using statistical techniques and tools. This chapter tests the collected data and provides the findings of the study.

CHAPTER V- SUMMARY, CONCLUSIONS, RECOMMENDATIONS, BIBLIOGRAPHY AND APPENDICES.

This chapter summarizes in short the entire research work done for the current topic and with it presents the major findings of the study and conclusions are drawn based on the interpretation and findings. Further it puts forth the recommendations for further research work which can be carried out.

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Bombay Jam Instructor Training Manual.

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